Amir Marshal

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EDUCATION

University of Waterloo Ontario, Canada
Master of Applied Science in Management Sciences and Engineering (GPA: 91/100) *Sep. 2024 – Present*

Sharif University of Technology Tehran, Iran
Bachelor of Applied Science in Electrical Engineering (GPA:19.05/20) *Sep. 2019 – Aug. 2024*

RESEARCH INTERESTS

Optimization, Stochastic Processes, Queuing Theory, Reinforcement Learning, Dynamic Programming, Scheduling, Optimal Transport, Information Theory

EXPERIENCE

Graduate Research Assistant Sep. 2024 – Present
University of Waterloo *Waterloo, Canada*

- Worked under the supervision of Professors. Hossein Abouee Mehrizi and Nasser Barjesteh
- Developed a scheduling and control policy for multi-calss multi server stochastic processing networks with wait-time dependent customers using the so-called heavy-traffic analysis
- Validated the theoretical results by extensive Monte Carlo simulations on the Trillium HPC
- Currently working on developing RL-based scheduling and control policies for general multi-class multi-server stochastic processing networks with unknown parameters and mathematical guarantees behind them

Undergraduate Research Assistant Sep. 2022 – Aug. 2024
Sharif University of Technology *Tehran, Iran*

- Studied various concepts in quantum computation and information and their corrposonding application in machine leanring theory
- Studied optimal transport and its application in concentration inequalities

Undergraduate Research Assistant Sep. 2023 – Aug. 2024
University of Waterloo *Waterloo, Canada*

- Worked on improving and cleaning a dataset of Persian poems
- Fine-tune a GPT-3 model using PPO and DPO methods to generate Persian poems

PUBLICATIONS

Dynamic Control of Multiclass Multi-Episode Service Systems with Waiting-Time-Dependent Transitions *with Hossein Abouee-Mehrizi, Nasser Barjasteh, and Brendan Wylie-Toal* (Working Paper, 2025)

HONORS AND AWARDS

- **Graduate Research Scholarship**, 2024, *University of Waterloo, Management Sciences and Engineering*
- **Ranked 3rd among 150 Electrical Engineering students**, Sharif University of Technology
- **Silver Medal**, 2019 *International Olympiad on Astronomy and Astrophysics (IOAA)*
- **Gold Medal**, 2018 *Iranian National Olympiad on Astronomy and Astrophysics*

TEACHING EXPERIENCE

Teaching Assistant Sep. 2024 – Present
University of Waterloo *Waterloo, Canada*

- Advanced Calculus and Numerical Methods
- Engineering Economics
- Operation Analytics
- Simulation Analysis and Design

Teaching Assistant   Sep. 2022 – Aug. 2024
Sharif University of Technology   *Tehran, Iran*
- Convex Optimization I
- Probability and Statistics
- Introduction to Machine Learning
- Information Theory, Statistics, and Learning

Related Coursework

University of Waterloo
Deterministic Models for Operation Research, Probablistic Models for Operation Research, Theory of Probability I

Sharif University of Technology
Convex Optimization I, Introduction to Machine Learning, ITSL (Information Theory, Statistics, and Learning), High Dimensional Probability, Big Data, Graph Signal Processing

Technical Skills

Programming Languages: Java, Python, C/C++, SQL, R, MATLAB
Frameworks & Libraries: PyTorch, TensorFlow, Numpy, Pandas, PySpark, Eigen, NLopt, Gurobi
Tools & Environments: LaTeX, CUDA, OpenCL, GitHub